

The 20th William Blum Lecture
Presented at the 66th AES Annual Convention in Atlanta, Georgia
June 25, 1979

Technical Communication - **(Or – Your Old Technical Editor Strikes Again)**

by
Frederick B. Lowenheim

Recipient of the 1978 William Blum
AES Scientific Achievement Award



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Editor's Note: This article is a re-publication of excerpts from the 20th William Blum Lecture, presented at the 66th AES Annual Convention in Atlanta, Georgia, on June 25, 1979. Only excerpts from the lecture were published, and the full text, once available on request from AES Headquarters, is lost to history.



Highlighting the Awards Ceremony at the opening session of SUR/FIN '79 was the presentation by President Gerald Schmidt of the 1978 AES Scientific Achievement Award to Dr. Frederick A. Lowenheim (left).

Introduction to the text at time of publication

Following tradition, Dr. Frederick A. Lowenheim, recipient of the 1978 AES Scientific Achievement Award, delivered the William Blum Lecture at the opening session of the annual conference. Contrary to tradition, however, Dr. Lowenheim did not discuss his scientific achievements or the progress of the electroplating industry, but instead addressed an area of broader concern - communication; more specifically, Technical Communication." His was a speech combining humor and instruction for technical writers. Those of you who despise the editor's overactive pen, those of you who dislike constructive criticism about your ability to write, will want to proceed no further. The rest may enjoy the following excerpts from the 20th William Blum Lecture

- Meaning what you say, of course, is important, except perhaps for diplomats and politicians. But saying what you mean is, for scientific writers, of paramount importance.

- An example occurs to me, dredged up from my days as a lab instructor in graduate school. One of the chemistry students was performing an experiment; following directions, to a mixture in a flask he poured in, all at once, the requisite amount of nitric acid; the experiment ended up on the ceiling, and the student was lucky not to follow it. The directions said "add nitric acid and stir"; what they should have said was add nitric acid while stirring." It does make a difference. There is simply no substitute for accuracy in technical writing, and all the elements of it - grammar, syntax, style, choice of the right word, and putting the right word in the right place, contribute to this accuracy.

- The point is that, by reversing the process, by examining one's writing for those vague and passive and meaningless words and phrases and mercilessly expunging them, it is possible to escape the trap of gobbledygook and to write clearly and precisely... Here's a real life example: the title of a study made for HEW was "Evaluation and parameterization of stability and safety performance characteristics of two and three wheeled vehicular toys for riding." That translates into English as "Why children fall off bicycles."

- And how about the habit of writing that the experiment was run at "ambient" temperature when all you mean is room temperature? Actually, by using the longer and fancier word you are gaining nothing in accuracy and may even be sacrificing something. Admittedly "room temperature" isn't specific, because it depends on where you were and what sort of day it was; you really mean that you didn't take the trouble to control the temperature. But "ambient" means only "surrounding," and if you had put the flask in a furnace, the ambient temperature might be 250°C, and if in a refrigerator - well, you see what I mean. Parameter is another "impressive" word that is very vague, except in purely mathematical contexts; if you mean variable, why not say it?

- For many years, scientific writers, in what seemed to them appropriate modesty, never wrote "I used a current density of 50 amperes per square meter"; it was always "a current density of 50 amperes per square meter was used." This gave an appearance of impersonality that was thought to be proper for a scientist. Lately, there has been some objection to this tradition, and some authorities have come out squarely for using the first person with an active verb, and to blaze with impersonality. I'm all for it; you may have noted that the first person pronoun has appeared quite frequently in this talk. Why not drop the false modesty and admit that it was you who ran the experiment instead of "the experiment was carried out"; on a stretcher?

- Remember that most readers will glance at the abstract of your article, and from that glance will decide whether they want to read the whole thing or turn the page. For many it will be the only part they read, so in fairness to yourself and the reader the abstract should be informative, and not only tell what the paper is about, but also point out the main conclusions reached by the work. Abstract journals, like Chemical Abstracts, will also rely heavily on your abstract, and the chance that your work will be buried forever in the growing forest of library shelves, or files of microfilm, increase as the abstract becomes noninformative. So see that your abstract is concrete.

- Many writers merely, in effect, transcribe their notebooks, in the sense that they tell us the experiments they ran, in the order they ran them, culminating in the final experiment that worked and gave them the result they were looking for. Call that the chronological order. But your reader isn't interested in that; he wants to find out what you discovered or developed, and isn't particularly concerned with the experiments that didn't work. So the correct order in technical papers is logical, not chronological: unlike a detective story, it's better to start rather than finish with "the butler did it."

- The purpose of a bibliography is emphatically not to show off your erudition by citing every reference you can find. Briefly, the purpose of a bibliography is to help the reader, not to impress him.

About the author:

This piece was written at the time Dr. Lowenheim was announced as the recipient of the 1978 Scientific Achievement Award:



Dr. Frederick A. Lowenheim of Plainfield, New Jersey, and of the AES Newark Branch, has been named the 1978 recipient of the distinguished AES Scientific Achievement Award. The Award Selection Committee made its choice known at the opening session of the 65th AES Annual Technical Conference in Washington, DC, on June 26.

Dr. Lowenheim, born in 1909 in New Rochelle, New York, received AB and PhD degrees from Columbia University in 1930 and 1934, respectively. He began his business career in 1934 as a Chemist for the Comolite Corp. in Long Island City. He joined Metal & Thermit Corp. (now M&T Chemicals Inc.) in 1936 and held the positions of Research Chemist, Research Supervisor, Research Manager, and Research Coordinator before his retirement in 1971. Since then, he has been engaged in full-time technical writing

and consulting.

His professional emphasis has been on inorganic chemistry and electrochemistry, particularly tin and tin-alloy deposition, and corrosion of plated coatings. He has been granted numerous patents, including: "Tin Plating from Potassium Stannate Baths," which met with immediate and continuing industrial acceptance; "Copper-Tin Alloy Plating," a novel method of replenishing the bath; "Electroplating of Tin," using the one per cent aluminum anode, widely adopted because of its great improvement in plating speed and ease of anode maintenance; "Electrodeposition of Tin-Zinc Alloys," using potassium salts, the basis of commercial practice in the industry; "Immersion Tinning from Stannate ions," used to some extent for immersion tinning of copper and brass; "Process for Treating Metals," a method for handling scrap tinplate consisting of tinplate bodies and aluminum ends, which solves the problem of waste of alkali reacting with the aluminum. This process is in use by M&T's metal recovery division.

Since 1942, Dr. Lowenheim has published widely. In addition to many papers he has written for technical journals, he has authored or coauthored the chapters "Uncommon Metals," "Tin Alloys" and "Tin Plating by Immersion" in *Modern Electroplating* (2nd ed., 1953), the chapters "Alkaline Tin Plating," "Immersion Tin Plating" and "Bronze and Other Tin Alloys" in *Modern Electroplating* (3rd ed., 1974); about 25 chapters on elemental analysis for many metals in *Snell- Etre Encyclopedia of Industrial Chemical Analysis* (1968-74); a chapter on electrochemistry in *Standard Handbook for Electrical Engineers* (9th and 10th eds, 11th in press, 1957, 1968, 1978); a chapter on electroplating in *Kirk-Othmer Encyclopedia of Chemical Technology* (2nd ed.); a chapter on electroplating in *Encyclopedia Americana*; a chapter, "Alloy Electroplates," in *Encyclopedia of Engineering Materials and Processes* (1963); a chapter, "Deposition of Inorganic Films from Solution," in *Thin Film Processes* (to be published); and a chapter, "Tin and Tin Plate," in *Corrosion Resistance of Metals and Alloys* (2nd ed., 1963).

He has also authored, coauthored or edited several books, including: *Metal Coating of Plastics* (1970), a critical review of the patent literature; *Industrial Chemicals* (4th ed., 1975), a standard reference which illustrates Dr. Lowenheim's expertise outside of the electroplating field; *Electroplating: Fundamentals of Surface Finishing* (1978), intended to satisfy the need for an intermediate-level text on fundamentals (see *P&SF*, July 1978 issue, p. 12); *Modern Electroplating* (2nd ed., 1963, and 3rd ed., 1974), a widely acknowledged standard reference; *ASTM Special Technical Publication: Selection of Electroplated and Related Finishes* (in preparation), intended to aid the designer and engineer in selecting which coating to use, the use of specifications, design considerations, etc.

From 1963-74, Dr. Lowenheim was Technical Editor of *Plating* (now *P&SF*) for which he was credited with improving the standards and technical standing, and introducing several changes in format to satisfy both academic and practical readers. He authored a regular feature, the "Technical Editor's Page," during these years, reviewed many books, and edited all technical articles.

He has served AES as a member of its Editorial Board and as Technical Chairman for the AES Annual Technical Conference held in Atlantic City in 1963. He has also been associated as member, fellow, or chairman with numerous professional societies, including the American Institute of Chemists, the Electrochemical Society, the Institute of Metal Finishing and the American Association for the Advancement of Science.

In 1973, Dr. Lowenheim was named a Fellow of the American Society for Testing and Materials and received ASTM's Award of Merit for "meritorious service and leadership in the preparation of many standards particularly regarding tin and tin-alloy electrodeposits. . . ." He has been a member of ASTM Committee B-8 since 1952 and is the Past Chairman and organizer of the Subcommittee on Coating of Tin, Lead and Their Alloys.